Remarks

In the Office Action mailed July 1, 2003:

1. Claims 1-3, 5-7, 9-22 and 24-32 were rejected under 35 U.S.C. § 103(a) in view of U.S. Patent No. 5,844,890 (Delp); and
2. Claim 8 was rejected under 35 U.S.C. § 103(a) in view of Delp and U.S. Patent No. 5,732,094 (Petersen).

I. Delp (U.S. Patent No. 5,844,890)

Delp is intended to describe "a method for scheduling cell transmissions that provides proportional use of available network bandwidth" (column 1, lines 22-24). Because Delp is concerned with proportional use of network bandwidth, and does not allow dynamic adjustment of the amount of data a channel can transmit, it cannot make obvious the claimed embodiments of Applicant's invention.

A. Delp Associates Priorities with Scheduling Mechanisms, not Data

For making decisions regarding which data cells to prepare for transmission, Delp employs timing wheels (column 5, lines 37-44; column 3, lines 34-37). Using the different timing wheels, Delp attempts to ensure that different data streams receive proportional shares of network bandwidth (column 3, lines 18-20; column 3, lines 22-30). Different priorities of different timing wheels are used to meet desired parameters of different logical channels and help schedule queues to the appropriate timing wheel and timing wheel slot (Figure 2B; column 7, lines 23-24).

B. Delp Does Not Use Dynamic Weights for Controlling How Much Data is Sent

In Delp, data cells of a data stream are stored in queues, for which target transmission times are calculated using parameters associated with the stream's logical channel (column 3, lines 31-34). Queues are assigned to appropriate time slots in the timing wheels, to attempt to meet the target transmission times (column 3, lines 34-37). Each slot apparently allows a single transmission from whichever data cell queue is assigned to the slot and is active when the slot becomes the current slot. All slots are apparently equal in the amount of data cells they allow to be scheduled.

II. Selected Claims

A. Claims 1-3, 5-10, 32

1. Priorities

receiving multiple descriptors at a communication interface device, each of said descriptors describing a data portion having an associated priority;

Claim 1 recites the use of a plurality of memories in which descriptors are stored. Descriptors having identical priorities may be stored in the same memory.

As described above, Delp does not associate priorities with descriptors or data described by descriptors. Not surprisingly, Delp teaches away from Applicant's prioritization of data, because Delp is attempting to ensure *proportional* usage of network bandwidth by each of multiple logical channels.

The Examiner has equated Applicant's prioritization of data with the different priorities that may be assigned to timing wheels in Delp. The two cannot be equated. In the Delp system, changing a data cell's priority would not change how it is scheduled – it would still be scheduled for transmission preparation based on the service parameters of its logical channel descriptor (LCD). In contrast, scheduling data in the present invention based on the data's priority allows the scheduling to be dynamically altered by putting different data into different memories with different target amount of data to be scheduled (as discussed in the next section).

2. Weights

maintaining a dynamic weight for each of said plurality of memories, wherein each said dynamic weight corresponds to a threshold amount of data associated with said predetermined priority;

In the embodiment of claim 1, each memory has a dynamic weight corresponding to a threshold amount of data associated with the descriptors' priority. That threshold amount of data serves as a target for the amount of data from that memory's descriptors that should be scheduled during each service turn. The weights are dynamic so that a particular data priority may be better serviced.

In the office action, Applicant's use of dynamic weights was compared to Delp's use of a "dummy" LCD in a high priority timing wheel. During the time slot of the dummy LCD, the

transmission window of the dummy LCD is provided to a lower priority timing wheel. This merely ensures that the lower priority wheel gets some transmission time when the high priority wheel is busy.

The transferred time slot, however, is not associated with a particular LCD or data cell queue in the lower priority wheel. Thus, even if the size of the transmission window were dynamic (which does not seem to be indicated), this mechanism could not be used to change how much data a specific channel could prepare for transmission.

The Examiner reports that the data amount transmitted in Delp can be determined by the time slot window and the bit rate. However, adjusting either of these parameters affects all logical channels, and apparently cannot be tailored to increase the amount of data sent for a single channel.

3. Determining whether the threshold amount of data has been exceeded

> determining whether an amount of data scheduled during said servicing for transmission via said communication link exceeds said threshold amount of data corresponding to said dynamic weight for said serviced memory;

Because Delp does not use dynamic weights to determine or control how much data of a given priority can be scheduled for transmission, Delp has no need or ability to determine if a threshold amount has been exceeded.

The Examiner has cited column 8, lines 45-67 as teaching this action, wherein Delp checks whether a slow wheel boundary has been crossed. However, this is merely a timing issue; each slot in a timing wheel corresponds to a range of time (column 7, lines 52-56), and the process of FIG. 7 relates to moving to a next time period (column 8, lines 45-46).

4. Changing a threshold

> if said amount of data scheduled for transmission exceeds said threshold amount of data, decreasing said threshold for a next servicing of said serviced memory;

Because Delp does not use dynamic weights to determine or control how much data of a given priority can be scheduled for transmission, Delp has no need or ability to determine if a threshold should be altered.

Column 9, lines 37-54 may describe the calculation of a new timestamp and new time slot, but this merely affects *when* a given cell may be prepared for transmission. This does not affect how much data a given channel or priority of data can schedule during a given service turn. The quoted element of claim 1 describes changing *how much* data can be scheduled in a subsequent turn, not *when* it can be scheduled.

B. Claims 11-22, 24

The rejections of claims 11 and 24 are traversed for the reasons stated in sections I and II.A above.

C. Claims 25-31

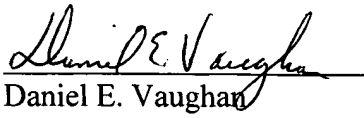
No components or portions of the system of Delp were cited against the elements of claim 25. However, it appears that, at a minimum, Delp does not include an arbiter for monitoring an amount of data retrieved during a servicing turn. Delp also fails to teach the use of dynamically adjustable weights associated with memories for storing descriptors.

CONCLUSION

No new matter has been added with the preceding amendments. It is submitted that the application is in condition for allowance. Such action is respectfully requested. If prosecution of this application may be facilitated through a telephone interview, the Examiner is invited to contact Applicant's attorney identified below.

Respectfully submitted,

Date: September 2, 2003

By:  42,199

Daniel E. Vaughan (Registration No.)

Park, Vaughan & Fleming LLP
702 Marshall Street, Suite 310
Redwood City, CA 94063
(650) 474-1973: voice
(650) 474-1976: facsimile